

East Fork Locust Creek
Recreational Use Attainability Analysis

July 2005

Prepared for:
UAA Review Committee
Water Quality Monitoring & Assessment Section
Water Protection Program
MISSOURI DEPARTMENT OF NATURAL RESOURCES
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I. PROJECT BACKGROUND

East Fork Locust Creek was evaluated for existing and attainable Whole Body Contact Recreation (WBCR) uses in July 2005. At the request of the City of Milan, MEC assessed classified reaches of East Fork Locust Creek near the Milan WWTF (MO 0048151) for existing, potential, and attainable WBCR uses. The assessment described herein is expected to meet or exceed the requirements set forth by the MDNR for conducting a Recreational Use Attainability Analysis (UAA) (MDNR 2004).

II. STUDY AREA

The surveyed portion of East Fork Locust Creek (Figure 1) is a Class P water of the state and a tributary to Locust Creek near Milan, Missouri (Blunt 2004). Uses currently designated for East Fork Locust Creek include: Protection of Warm-Water Aquatic Life and Human Health – Fish Consumption, and Livestock and Wildlife Watering. Draining a 124 mi.² watershed in Sullivan County, East Fork Locust Creek is dominated by cool season grassland (78%) and upland deciduous forest (10%) according to 1993 Thematic Mapper imagery. The East Fork Locust Creek watershed is contained within the Grand River Basin (8 digit HUC 06897500) and State assigned water body identification number is 0608.

III. METHODS AND MATERIALS

Procedures developed by MDNR for conducting Recreational UAAs (MDNR 2004) were the primary reference for this study. In summary, MDNR UAA procedures contain the minimum elements listed below:

- Survey should generally be conducted during the regulatory recreational season (April 1 to October 31);
- Surveys should be conducted during baseflow conditions;
- Recreational assessments should be performed at a minimum of three publicly accessible sites along the stream reach of interest;
- All sites shall be marked on a 1:24,000 USGS topographic map
- A photographic record of each site that includes upstream and downstream views, in addition to any evidence of observed or potential recreational uses; and
- Interviews of persons present during the time of survey and nearby-residents.

In addition to MDNR minimum requirements, MEC staff collected the following data within an assessment reach having a total length of approximately twenty times bankfull width:

- Stream hydrogeometry (width, depth, velocity, bank slope);
- Riffle, pool, run (stream mesotype) composition; and
- Riparian corridor characteristics

Hydrogeometry measurements were obtained along three equally spaced cross-sections within each mesotype unless one mesotype dominated the entire upstream or downstream reach, e.g. one large bridge scour pool. Five equally spaced cross-sections were taken for situations where a single mesotype dominated the assessment reach. Streamflow measurements were obtained using a Price AA 'Pygmy' velocity meter and calibrated wading rod.

IV. RESULTS & DISCUSSION

The following discussion is provided to aid decision-makers in evaluating appropriate existing or potential recreational uses for East Fork Locust Creek. Although summarized in the following paragraphs, the field data sheets required by MDNR UAA protocols are included in Appendix A. Additional data collected during the survey are included in Appendix B.

Streamflow and Weather Conditions

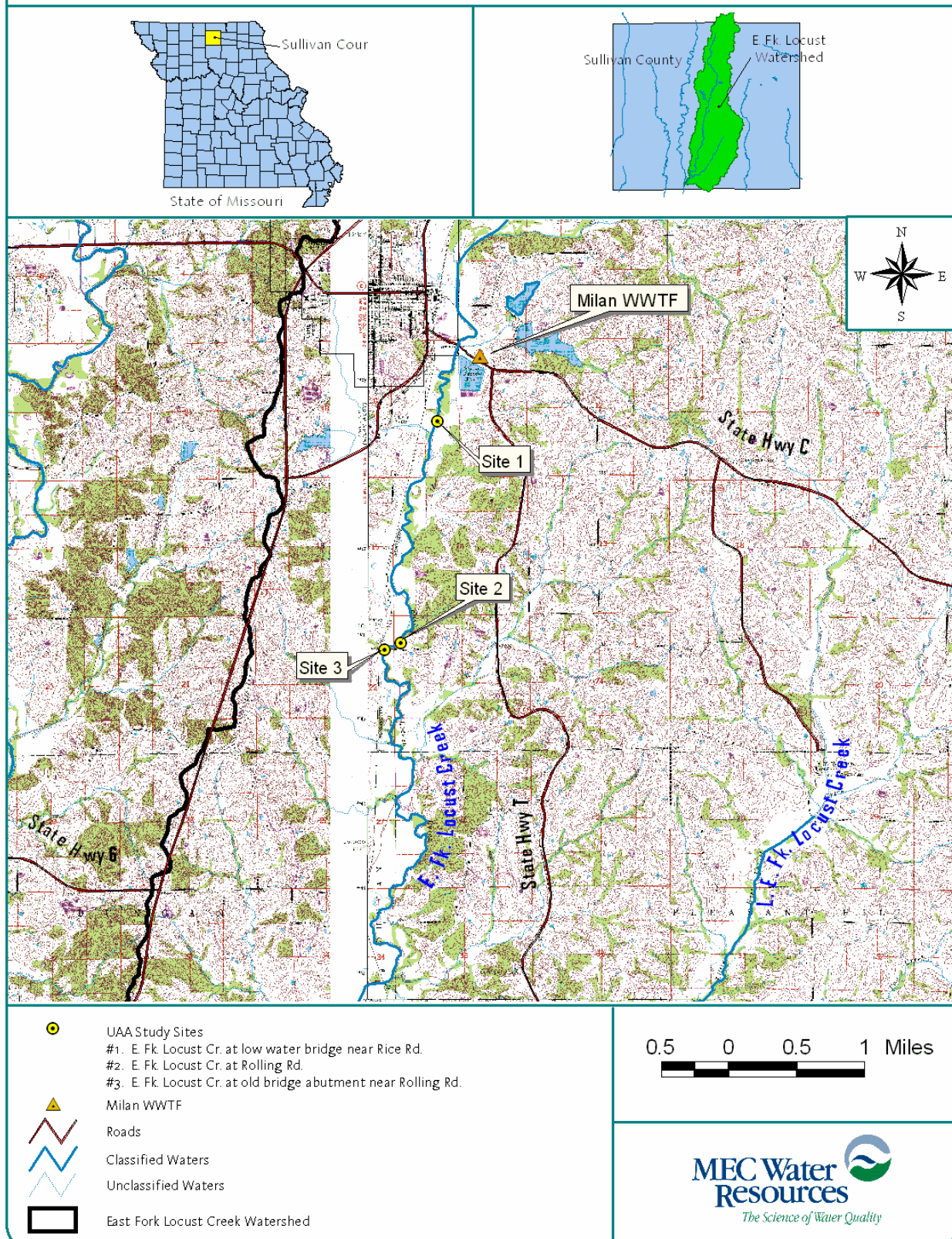
Three sites (Figure 1) within classified sections of East Fork Locust Creek were assessed on July 10, 2005 using methods described in Section IV; o6o8_Site 1_Low-water bridge near Rice Road, o6o8_Site 2_Rolling Road bridge, and o6o8_Site 3_Old bridge abutment near Rolling Road. Surveys were conducted during low-flow conditions as evidenced by streamflow measurements taken in East Fork Locust Creek the day of the survey and from precipitation and streamflow data from USGS gage stations o6897500 and o69o2000, near Gallatin and Sumner, MO respectively (Tables 1-3).

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Figure 1. E. Fk. Locust Creek Study Area and Sites



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Weather conditions during the time of the study were stable with the last measured rainfall occurring two weeks prior to the evaluation (Table 1). Air temperatures were approximately 85°F and skies were clear. Weather conditions are not believed to have precluded or limited recreational opportunities during the survey.

Table 1. Precipitation Data from Grand River USGS Gage Station 06897500 (Gallatin, MO)

Date (mm/dd/yy)	Precipitation (inches)
06/26/05	0.00
06/27/05	0.00
06/28/05	0.00
06/29/05	0.00
06/30/05	0.00
07/01/05	0.04
07/02/05	0.00
07/03/05	0.07
07/04/05	0.16
07/05/05	0.00
07/06/05	0.00
07/07/05	0.00
07/08/05	0.00
07/09/05	0.00
07/10/05	0.00

Table 2. Streamflow Conditions from Grand River USGS Gage Station 06902000 (Sumner, MO)

Date (mm/dd/yy)	Streamflow (cfs)
07/10/05	656
07/09/05	693
07/08/05	735
07/07/05	795
07/06/05	877
07/05/05	986
07/04/05	1112
07/03/05	1072
07/02/05	1085
07/01/05	1112
06/30/05	1044
06/29/05	1029
06/28/05	1078
06/27/05	1150
06/26/05	1232

Table 2. Observed Streamflow Conditions During East Fork Locust Creek Recreational UAA Survey

Date (mm/dd/yy)	Site (name)	Streamflow (cfs)
07/10/05	Site 1	2.07
07/10/05	Site 2	2.08

Site Characterization

Sites surveyed as part of this study represent the only publicly accessible areas along classified segments of East Fork Locust Creek within a reasonable proximity of the wastewater treatment plant discharge. Study results are discussed for each site to provide a description of differences between assessment reaches.

Site 1. Low-water bridge near Rice Road (40.18653, -93.11638) .45 miles from WWTF

The low-water bridge crossing is just downstream of the Milan WWTF. The bridge is located on private property and was accessed by permission. The bridge is the only known access point to East Fork Locust Creek near the Milan City limits and could be accessed by the public/nearby residents. The land use near the crossing is made up of pasture areas with some forested and row crop areas nearby. The banks are steeply sloping and are covered with grass, shrubs, and trees that impede access to the stream

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(Figures 2 and 3). Riparian areas are narrow and are composed of trees and shrubs. Channel substrate is a mixture of mostly sand with some silt.

Figure 2. East Fork Locust Creek Site 1 Upstream View



Figure 3. East Fork Locust Creek Site 1 Downstream View



Mean depth along a 600 ft. assessment reach was 0.28 ft. as determined from 10 transects (Appendix B). The maximum depth observed at this location was 1.01 ft. MEC staff measured streamflow as 2.07 cfs near the bridge. Some algal growth was present.

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MEC staff did not observe any direct nor indirect evidence of WBCR at Site 1. MEC staff conducted an informal interview with the nearby landowner (Wendell Fleshman, 23830 Lujan Dr., Milan, MO 63556) who stated that he had never used the stream for any WBCR use nor had he ever witnessed any WBCR uses by anyone else. MEC staff concludes that WBCR is neither an existing nor an attainable use at this site based on limited access to the stream imposed by steep slopes, absence of observed WBCR uses, information from the informal interview, and low-flow shallow conditions.

Site 2. Rolling Road bridge crossing (40.16465, -93.12058) 2.51 miles from WWTF

The stream banks near the road are steeply sloping and are covered with low-growing brush and rocks (Figures 4 and 5). The riparian areas are narrow and surrounding land uses are mainly row crop agriculture and open pastures (Figure 4). The stream channel was observed to be mostly sand. Fences bordered the stream channel on the right stream bank.

Figure 4. East Fork Locust Creek Site 2 Upstream View



Mean depth along a 500 ft. assessment reach was 0.68 ft. as determined from 14 transects (Appendix B). The maximum depth observed at this location was 4.25 ft. within a scour pool underneath the bridge. The bridge scour hole is located in a sand substrate and depth of the scour hole is expected to change and fill-in following storm events. Therefore, applying the maximum depth criteria is likely questionable at this site. Other than this narrow bridge scour pool, the maximum depth in the reach was 2.95 feet.

There was no direct or indirect evidence human use observed at this site. MEC staff concludes that WBCR is neither an existing nor an attainable use at this site based on absence of observed recreational uses, generally low-flow shallow conditions, and difficult stream access due to the steeply sloping banks.

Figure 5. East Fork Locust Creek Site 2 Downstream View



Site 3. Old bridge abutment near Rolling Road (40.16417, -93.12288) 2.66 miles from WWTF

Site 3 is at an old bridge abutment near Rolling Road. The riparian area consists of larger trees and thick brush (Figures 6 and 7). The stream banks at Site 3 are somewhat steep with thick vegetation. Stream substrate consisted of mostly sand with some silt.

Mean depth along a 600 ft. assessment reach was 0.89 ft as determined from 11 transects (Appendix B). The maximum depth observed at this location was 2.5 ft. Flow was measured as 2.08 cfs.

There was no direct or indirect evidence human use observed at this site. MEC staff concludes that WBCR is neither an existing nor an attainable use at this site based on absence of observed recreational uses, low flow shallow conditions, and difficult stream access due to the steeply sloping banks.

Figure 6. East Fork Locust Creek Site 3 Upstream



Figure 7. East Fork Locust Creek Site 3 Downstream



V. WHOLE BODY CONTACT USE ATTAINABILITY RECOMMENDATION

MEC Staff concludes that the surveyed reaches of East Fork Locust Creek are not currently used for WBCR uses due to the absence of observed WBCR uses, the presence of steep bank slopes, and the presence of fences along the stream channel.

Furthermore, WBCR uses in East Fork Locust Creek are not consistently attainable according to depth criteria associated with ephemeral, intermittent, or low flow conditions set forth in MDNR UAA guidance.

VI. REFERENCES

Blunt, M. 2004. Code of State Regulations; Missouri Water Quality Standards, Title 10, Division 20, Chapter 7.

Missouri Department of Natural Resources. 2004. Recreational Use Attainability Analysis Protocol. Water Protection Program, Jefferson City, MO.

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Appendix A


MDNR Field Data Sheets

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet A – Water Body Identification

Water Body Name: East Fork Locust Creek (from USGS 7.5' quad)
8-digit HUC: 10280103
Missouri WBID # 0608
County: Sullivan
Upstream Legal Description: SW ¼ of NW ¼ of Section 11, Township 62N, Range 20W
Downstream Legal Description: NW ¼ of SW ¼ of Section 22, Township 62N, Range 20W
Upstream Coordinates: 40.19344 latitude, -93.10950 longitude (USG 84, ddd,dddd)
Downstream Coordinates: 40.16417 latitude, -93.12288 longitude (USG 84, ddd,dddd)
Discharger Facility Name(s): Milan WWTF
Discharger Permit Number(s): MO0039721
Number of Sites Evaluated: 3
Name of Surveyor and Telephone Number: Tom Wallace/573-443-4140
Organization: MEC Water Resources
Position: Principal

I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UAA datasheet is true and accurate.

Signed:  Date: 7/12/05

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization

(A separate data sheet must be completed for each site)

Missouri WBID #: <u>0608</u>	Site Location Description:
Site Lat/Long: <u>40.18653</u> <u>-93.11638</u>	<u>Low-water bridge near Rice Rd. Site 1</u>
Date & Time:	Facility Name: <u>Milan WWTF</u>
Personnel: <u>TW</u>	Permit Number: <u>MO 0048151</u>
Current Weather Conditions: <u>85° sunny</u>	Weather Conditions for Past 7 days: <u>See Report</u>
Photo Ids: Upstream: <u>89</u>	Downstream: <u>10, 11</u> Other:

Used Observed*:

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin Diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water Skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other

Describe: (include number of individuals recreating, frequency of use, photo-documentation of evidence of recreational uses, etc.) Interviewed property owner who stated that he had NEVER seen anyone swimming in the creek. Property owner was Wendell Fleishman, 23830 Lujan Dr., Milan, MO 63556

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Campgrounds
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Fence	<input checked="" type="checkbox"/> Steep slopes	<input checked="" type="checkbox"/> Other: <u>cows in stream upstream of access trash in stream</u>	

Evidence of Human Use*:

<input checked="" type="checkbox"/> Roads <u>bridge crossing</u>	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Livestock Watering	<input type="checkbox"/> RV/ATV Tracks
<input type="checkbox"/> Rope swings	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle
<input type="checkbox"/> Other:				

Site Locations Map(s): Attach a map of entire segment with assessment sites clearly labeled. Mark any other items that may be of interest. (Include photographs)

*Some of this information is not intended to directly influence a decision on any one particular recreational use analysis but may point to conditions that need further analysis or that effect another use.

Stream Morphology:

Upstream View Physical Dimensions: See Appendix B in Report

<input type="checkbox"/> Riffle	Width(ft)	Length(ft)	Ave. Depth(ft)	Max. Depth(ft)
<input type="checkbox"/> Run	Width(ft)	Length(ft)	Ave. Depth(ft)	Max. Depth(ft)
<input type="checkbox"/> Pool	Width(ft)	Length(ft)	Ave. Depth(ft)	Max. Depth(ft)
<input checked="" type="checkbox"/> Flow	Present?	(Yes) No	Estimated (ft ³ /sec):	2.07

Downstream View Physical Dimensions: See Appendix B in Report

<input type="checkbox"/> Riffle	Width(ft)	Length(ft)	Ave. Depth(ft)	Max. Depth(ft)
<input type="checkbox"/> Run	Width(ft)	Length(ft)	Ave. Depth(ft)	Max. Depth(ft)
<input type="checkbox"/> Pool	Width(ft)	Length(ft)	Ave. Depth(ft)	Max. Depth(ft)
<input type="checkbox"/> Flow	Present?	Yes No	Estimated (ft ³ /sec):	see above

Substrate*: (These values should add up to 100%)

%Cobble	%Gravel	75 %Sand	25 %Silt	%Mud/Clay	%Bedrock
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Aquatic Vegetation*: (note amount of vegetation or algal growth at the assessment site)

minimal algal growth

Water Characteristics*: (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other
Color:	<input type="checkbox"/> Clear	<input checked="" type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input checked="" type="checkbox"/> Foam light	<input type="checkbox"/> None	<input checked="" type="checkbox"/> Other light algae

Comments: Please attach additional comments (including information from interviews) to this form.

*This information is not to be used solely for removal of whole body contact recreation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that effect another use.

I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UAA datasheet is true and accurate.

Signed: [Signature] Date: 7/12/05

Organization: McCabe Resumes Inc Position: Principal

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization

(A separate data sheet must be completed for each site)

Missouri WBID #: 0608		Site Location Description:	
Site Lat/Long: 40.16465 -93.12058		Rolling Road Site 2	
Date & Time:		Facility Name: Milan WWTF	
Personnel: TW		Permit Number: MO 0048151	
Current Weather Conditions: 85-90 sunny		Weather Conditions for Past 7 days:	
Photo Ids: Upstream: 1	Downstream: 2	Other:	

Used Observed*:

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin Diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water Skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other

Describe: (include number of individuals recreating, frequency of use, photo-documentation of evidence of recreational uses, etc.)

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Campgrounds
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> No trespass sign	<input checked="" type="checkbox"/> Fence	<input checked="" type="checkbox"/> Steep slopes	<input checked="" type="checkbox"/> Other: Bridge Overpass	

Evidence of Human Use*:

<input checked="" type="checkbox"/> Roads Bridge crossing	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Livestock Watering	<input type="checkbox"/> RV/ATV Tracks
<input type="checkbox"/> Rope swings	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle
<input type="checkbox"/> Other:				

Site Locations Map(s): Attach a map of entire segment with assessment sites clearly labeled. Mark any other items that may be of interest. (Include photographs)

*Some of this information is not intended to directly influence a decision on any one particular recreational use analysis but may point to conditions that need further analysis or that effect another use.

Stream Morphology:

Upstream View Physical Dimensions: See Appendix B in Report

<input type="checkbox"/> Riffle	Width(ft)	Length(ft)	Ave. Depth(ft)	Max. Depth(ft)
<input type="checkbox"/> Run	Width(ft)	Length(ft)	Ave. Depth(ft)	Max. Depth(ft)
<input type="checkbox"/> Pool	Width(ft)	Length(ft)	Ave. Depth(ft)	Max. Depth(ft)
<input checked="" type="checkbox"/> Flow	Present?	Yes No	Estimated (ft ³ /sec):	2.08

Downstream View Physical Dimensions: See Appendix B in Report

<input type="checkbox"/> Riffle	Width(ft)	Length(ft)	Ave. Depth(ft)	Max. Depth(ft)
<input type="checkbox"/> Run	Width(ft)	Length(ft)	Ave. Depth(ft)	Max. Depth(ft)
<input type="checkbox"/> Pool	Width(ft)	Length(ft)	Ave. Depth(ft)	Max. Depth(ft)
<input checked="" type="checkbox"/> Flow	Present?	Yes No	Estimated (ft ³ /sec):	see above

Substrate*: (These values should add up to 100%)

%Cobble	%Gravel	75 %Sand	25 %Silt	%Mud/Clay	%Bedrock
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Aquatic Vegetation*: (note amount of vegetation or algal growth at the assessment site)

deposition islands - willows	streambanks - willows
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Water Characteristics*: (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other
Color:	<input type="checkbox"/> Clear	<input checked="" type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input checked="" type="checkbox"/> Foam	<input type="checkbox"/> None	<input type="checkbox"/> Other

Comments: Please attach additional comments (including information from interviews) to this form.

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I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UAA datasheet is true and accurate.

Signed: [Signature] Date: 7/1/05

Organization: McClure & Sons Inc. Position: Principal

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization

(A separate data sheet must be completed for each site)

Missouri WBID #: <i>0608</i>		Site Location Description:	
Site Lat/Long: <i>40.16417 -93.12288</i>		<i>Old Bridge Abutment near Rice Rd Site 3</i>	
Date & Time:		Facility Name: <i>Milan WWTF</i>	
Personnel: <i>TW</i>		Permit Number: <i>MO 48151</i>	
Current Weather Conditions: <i>85 sunny</i>		Weather Conditions for Past 7 days: <i>see Report</i>	
Photo Ids:	Upstream:	Downstream:	Other:

Used Observed*:

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin Diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water Skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other

Describe: (include number of individuals recreating, frequency of use, photo-documentation of evidence of recreational uses, etc.)

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Campgrounds
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Fence	<input checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> Other:	

Evidence of Human Use*:

<input type="checkbox"/> Roads	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Livestock Watering	<input type="checkbox"/> RV/ATV Tracks
<input type="checkbox"/> Rope swings	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle
<input type="checkbox"/> Other: <i>None</i>				

Site Locations Map(s): Attach a map of entire segment with assessment sites clearly labeled. Mark any other items that may be of interest. (Include photographs)

*Some of this information is not intended to directly influence a decision on any one particular recreational use analysis but may point to conditions that need further analysis or that effect another use.

Stream Morphology:

Upstream View Physical Dimensions:

<input type="checkbox"/> Riffle	Width(ft)	Length(ft)	Ave. Depth(ft)	Max. Depth(ft)
<input type="checkbox"/> Run	Width(ft)	Length(ft)	Ave. Depth(ft)	Max. Depth(ft)
<input type="checkbox"/> Pool	Width(ft)	Length(ft)	Ave. Depth(ft)	Max. Depth(ft)
<input type="checkbox"/> Flow	Present?	Yes No	Estimated (ft ³ /sec):	

Downstream View Physical Dimensions:

<input type="checkbox"/> Riffle	Width(ft)	Length(ft)	Ave. Depth(ft)	Max. Depth(ft)
<input type="checkbox"/> Run	Width(ft)	Length(ft)	Ave. Depth(ft)	Max. Depth(ft)
<input type="checkbox"/> Pool	Width(ft)	Length(ft)	Ave. Depth(ft)	Max. Depth(ft)
<input type="checkbox"/> Flow	Present?	Yes No	Estimated (ft ³ /sec):	

Substrate*: (These values should add up to 100%)

%Cobble	%Gravel	75 %Sand	25 %Silt	%Mud/Clay	%Bedrock
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Aquatic Vegetation*: (note amount of vegetation or algal growth at the assessment site)

deposition islands - willows	streambanks - willows
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Water Characteristics*: (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other
Color:	<input type="checkbox"/> Clear	<input checked="" type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input checked="" type="checkbox"/> Foam	<input type="checkbox"/> None	<input type="checkbox"/> Other

Comments: Please attach additional comments (including information from interviews) to this form.

*This information is not to be used solely for removal of whole body contact recreation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that effect another use.

I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UAA datasheet is true and accurate.

Signed: [Signature] Date: 7/12/05

Organization: McCabe Realty Inc. Position: Principal

MEC Water Resources, Inc.

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Appendix B**Stream Morphology Information****o6o8_Site 1_Low-water bridge near Rice Road**

Length of Assessment Reach (ft.)		600	Mean Depth (ft.)	Maximum Depth (ft.)
Transect (#)	Reach Type (Riffle, Pool, Run, Dry)	Type Length (ft.)		
1	Run	300	0.28	0.42
2	Run		0.31	0.62
3	Run		0.16	0.32
4	Run		0.19	0.44
5	Run		0.20	0.34
6	Run	300	0.56	0.95
7	Run		0.64	1.01
8	Run		0.16	0.32
9	Run		0.19	0.44
10	Run		0.18	0.34

Maximum Observed Depth (ft.)	1.01
Mean Assessment Reach Depth (ft.)	0.28

o6o8_Site 2_Rolling Road

Length of Assessment Reach (ft.)		500	Mean Depth (ft.)	Maximum Depth (ft.)
Transect (#)	Reach Type (Riffle, Pool, Run, Dry)	Type Length (ft.)		
1	Run	196	0.26	0.71
2	Run		0.40	0.64
3	Run		0.65	1.4
4	Run		0.50	0.85
5	Run		0.43	0.75
6	Pool	46	0.75	1.47
7	Pool		1.12	1.97
8	Pool		1.50	2.95
9	Run	204	0.48	0.75
10	Run		0.35	0.64
11	Run		0.26	0.38
12	Bridge Scour Pool	54	2.88	4.25
13	Bridge Scour Pool		2.94	3.55
14	Bridge Scour Pool		1.27	1.45

Maximum Observed Depth (ft.)	4.25
Mean Assessment Reach Depth (ft.)	0.68

MEC Water Resources, Inc.

East Fork Locust Creek

Recreational Use Attainability Analysis

o6o8_Site 3_Old bridge abutment near Rolling Road

Length of Assessment Reach (ft.)		600		
Transect	Reach Type	Type Length	Mean Depth	Maximum Depth
(#)	(Riffle, Pool, Run, Dry)	(ft.)	(ft.)	(ft.)
1	Pool	300	0.68	1.42
2	Pool		1.73	2.5
3	Pool		1.34	2.26
4	Pool		1.37	2.14
5	Pool		0.95	1.9
6	Run	197	0.22	0.48
7	Run		0.12	0.54
8	Run		0.33	1.73
9	Pool	103	0.84	1.56
10	Pool		1.42	2.29
11	Pool		1.45	2.43

Maximum Observed Depth (ft.)	2.50
Mean Assessment Reach Depth (ft.)	0.89